

## **I. AMENDMENT**

### **In the Claims:**

Please amend claims 1, 2, 4, 7, 12, 15, 17, 19, 21, 23, 24, 25, 26, and 27. Please add new claims 28-41.

Please amend the application as follows:

### **In the claims:**

1. (Amended) A catastrophic event-survivable video recording system, comprising:

a video data compression unit having at least a first output, said first output comprising compressed digital video data;

a solid state video data recording unit having at least a first input in signal communication with said first output from said video data compression unit, said solid state video data recording unit being capable of recording compressed digital video data in catastrophic event-survivable form; and

a video data interface in signal communication between said video compressor first output and said solid state video data recording unit first input, said video data interface being capable of converting said compressed video data of said video data compression unit first output to a compressed video data signal that is suitable for recording by said solid state video data recording unit as a signal input to said video data recording unit first input;

wherein said solid state video data recording unit is a non-modified conventional flight data recording unit.

2. (Amended) The video data recording system of claim 1, wherein said video data interface is configured to modify the bandwidth and frame format of said compressed video data ~~video data recording unit is a conventional flight data recording unit.~~

3. (Original) The video recording system of claim 1, wherein said video data compression unit further comprises at least a first input, said first input comprising analog video data, and wherein said video data compression unit is capable of converting said analog video data to said compressed digital video of said video data compression unit first output.

4. (Amended) The video recording system of claim 3, wherein said video data interface is capable of converting said compressed video data of said video data compression unit first output to compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps; and wherein said solid state video data recording unit is capable of receiving and recording said compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps.

5. (Original) The video recording system of claim 1, wherein said video data compression unit produces said compressed digital video data first output at a variable rate.

6. (Original) The video recording system of claim 1, further comprising at least one video camera, said video camera having an output comprising analog video data; and wherein said video camera output is in signal communication with said video compression unit first input.

7. (Amended) The video recording system of claim 1, wherein said system is configured for installation on an aircraft; and wherein said solid state video data recording unit has at least a first output, said first output comprising compressed digital video playback data, said solid state video data recording unit being capable during flight operations of playing back said compressed digital video data that is recorded in catastrophic event-survivable form; wherein said video data compression unit has a second input in signal communication with said first output from said solid state video data recording unit and has a second output comprising analog video playback data, said video data compression unit being capable during flight operations of converting compressed digital video data to said analog video playback data; and wherein said video data interface is capable during flight operations of converting said compressed digital video playback data of said solid state video data recording unit first output to a compressed digital video data signal that is suitable for input to said second input of said video data compression unit and conversion by said video data compression unit to said analog video playback data of said video data compression unit second output.

8. (Original) The video recording system of claim 1, wherein said system is configured for installation on a vehicle.

9. (Original) The video recording system of claim 1, wherein said system is configured for installation on an aircraft.

10. (Original) The video recording system of claim 1, wherein said system is configured for installation on a land-based or sea-based facility.

11. (Original) The video recording system of claim 8, wherein said video data interface is capable of converting said compressed video data of said video data compression unit first output to compressed video data having a serial data and clock stream generated at a rate of from about 250 Kbps to about 500 Kbps.

12. (Amended) The video recording system of claim 11, wherein said solid state video data recording unit is capable of saving at least about 30 minutes of compressed digital video data recorded prior to a catastrophic event.

13. (Original) The video recording system of claim 11, further comprising at least one video camera, said video camera having an output comprising analog video data; and wherein said video camera output is in signal communication with said video compression unit first input.

14. (Original) The video recording system of claim 11, wherein said system is configured for installation on an aircraft.

15. (Amended) A catastrophic event-survivable video recording system, comprising:

a video data compression unit having at least a first output, said first output comprising compressed digital video data;

a solid state video data recording unit having at least a first input in signal communication with said first output from said video data compression unit, said solid state video data recording unit having at least a recording mode in which it is capable of recording compressed digital video data in catastrophic event-survivable form;

a video data interface in signal communication between said video compressor first output and said solid state video data recording unit first input, said video data interface having at least a recording mode in which it is capable of converting said compressed video data of said video data compression unit first output to a compressed video data signal that is suitable for recording by said solid state video data recording unit as a signal input to said video data recording unit first input; and

at least one video camera, said video camera having an output comprising video data; and wherein said video camera output is in signal communication with said a first input of said video compression unit ~~first input~~;

wherein said video data interface is capable of converting said compressed video data of said video data compression unit first output to compressed video data having a serial data and clock stream generated at a rate of from about 250 Kbps to about 350 Kbps;

wherein said solid state video data recording unit is a non-modified conventional flight data recording unit.

16. (Original) The video recording system of claim 15, wherein said system is configured for installation on an aircraft.

17. (Amended) The video recording system of claim 16, ~~wherein said video data recording unit is a conventional flight data recording unit, and~~ wherein said video data interface is configured to modify the bandwidth and frame format of said compressed video data; and wherein said video

data recording unit is capable of saving at least about 30 minutes of said compressed digital video data recorded prior to a catastrophic event.

18. (Original) The video recording system of claim 16, wherein said video camera has an output comprising analog video data; and wherein said video data compression unit is capable of converting said analog video data to said compressed digital video of said video data compression unit first output.

19. (Amended) The video recording system of claim 18, wherein said video data interface is capable of converting said compressed video data of said video data compression unit first output to compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps; and wherein said solid state video data recording unit is capable of receiving and recording said compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps.

20. (Original) The video recording system of claim 18, wherein said video data compression unit produces said compressed digital video data first output at a variable rate.

21. (Amended) The video recording system of claim 16, wherein said solid state video data recording unit has at least a first output, said first output comprising compressed digital video playback data, said solid state video data recording unit having a playback mode in which it is capable during flight operations of playing back said compressed digital video data that is recorded in catastrophic event-survivable form; wherein said video data compression unit has a second input in signal communication with said first output from said solid state video data recording unit and has a second output comprising video playback data, said video data compression unit having a playback mode in which it is capable during flight operations of

converting compressed digital video data to said video playback data; and wherein said video data interface is capable during flight operations of converting said compressed digital video playback data of said solid state video data recording unit first output to a compressed digital video data signal that is suitable for input to said second input of said video data compression unit and conversion by said video data compression unit to said video playback data of said video data compression unit second output.

22. (Original) The video recording system of claim 16, wherein said video camera is configured for mounting on an exterior surface of said aircraft, in the cockpit of said aircraft, in the passenger cabin of said aircraft, or in the cargo hold of said aircraft.

23. (Amended) The video recording system of claim 16, further comprising a video processor and a cockpit control unit;

wherein said video processor has a control input, a video data input and a video data output;

wherein said cockpit control unit has a control output, video data input and video data output;

wherein said video processor video data input is in signal communication with an analog video data output of said video compression unit;

wherein said video processor video data output is in signal communication with said video data input of said cockpit control unit;

wherein said video processor control input is in signal communication with said cockpit control unit control output;

wherein said cockpit control unit video output is in signal communication with at least one video display configured to be used or mounted within said aircraft; and

wherein said cockpit control unit is capable of controlling said video processor video data output to said video display to play back during flight operations said compressed digital video data in displayable form.

24. (Amended) The video recording system of claim 21, further comprising a cockpit control unit;

wherein said cockpit control unit has a control output that is in signal communication with a control input of said video data compression unit, and wherein said cockpit control unit has a control output that is in signal communication with a control input of said solid state video data recording unit;

wherein said video data compression unit second output is in signal communication with at least one video display configured to be used or mounted within said aircraft; and

wherein said cockpit control unit is capable of controlling said recording and playback modes of said video compression unit and said solid state video data recording unit so as to control recording of said video data during flight operations from said video camera by said solid state video data recording unit, to control display of said video playback data during flight operations by said video display, or a combination thereof.



25. (Amended) The video recording system of claim 15, wherein said system is configured for installation on an aircraft; and further comprising a cockpit control unit, said cockpit control unit having a control output that is in signal communication with a control input of said video data compression unit and a control output that is in signal communication with a control input of said solid state video data recording unit; and

wherein said video data compression unit second output is in signal communication with at least one video display configured to be used or mounted within said aircraft;

wherein said video camera has an output comprising analog video data, and is configured for is mounting on an exterior surface of said aircraft, in the cockpit of said aircraft, in the passenger cabin of said aircraft, or in the cargo hold of said aircraft;

wherein said solid state video data recording unit is a non-modified conventional flight data recording unit capable of saving at least about 30 minutes of compressed digital video data recorded prior to a catastrophic event;

wherein said video data compression unit is capable of converting said analog video data to said compressed digital video of said video data compression unit first output;

wherein said video data interface is capable of converting said compressed video data of said video data compression unit first output to compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps;

wherein said solid state video data recording unit is capable of receiving and recording said compressed video data output having a serial data and clock stream generated at a rate of about 256 Kbps;

wherein said solid state video data recording unit has at least a first output, said first output comprising compressed digital video playback data, said solid state video data recording unit having a playback mode in which it is capable during flight operations of playing back said compressed digital video data that is recorded in catastrophic event-survivable form;

wherein said video data compression unit has a second input in signal communication with said first output from said solid state video data recording unit and has a second output comprising analog video playback data, said video data compression unit having a playback mode in which it is capable during flight operations of converting compressed digital video data to said analog video playback data;

wherein said video data interface is capable during flight operations of converting said compressed digital video playback data of said solid state video data recording unit first output to a compressed digital video data signal that is suitable for input to said second input of said video data compression unit and conversion by said video data compression unit to said analog video playback data of said video data compression unit second output; and

wherein said cockpit control unit is capable of controlling said recording and playback modes of said video compression unit and said solid state video data recording unit so as to control recording during flight operations of said analog video data from said video camera by said solid state video data recording unit, to control display during flight operations of said analog video playback data by said video display, or a combination thereof.

26. (Amended) A method of recording raw video data onto a catastrophic event-survivable video recording unit, comprising:

compressing said raw video data to form compressed digital video data; ~~and~~

converting said compressed digital video data to a compressed video data signal that is suitable for recording by a solid state video data recording unit; and

recording said compressed video data on a solid state video data recording unit in catastrophic event-survivable form;

wherein said solid state video data recording unit is a non-modified conventional flight data recording unit.

27. (Amended) The method of claim 26, further comprising modifying a bandwidth and frame format of said compressed video data; and wherein said raw video data comprises analog video data generated by at least one video camera; wherein said compressing further comprises converting said analog video data to said compressed digital video data; wherein said compressed digital video data has a serial data and clock stream generated at a rate of from about 250 Kbps to about 500 Kbps; wherein said raw video data generation, conversion, compression and recording occurs on an aircraft; and wherein said solid state video data recording unit is a non-modified conventional flight data recording unit capable of saving at least about 30 minutes of said compressed digital video data recorded prior to a catastrophic event.

28. (New) The method of claim 26, wherein said raw video data generation, compression, conversion and recording occurs on an aircraft; and further comprising performing the following steps during flight operations:

playing back said recorded compressed digital video data from said solid state video data recording unit to form compressed digital video playback data;

converting said compressed digital video playback data to a modified compressed playback signal suitable for processing by a video compression unit; and

decompressing said modified compressed playback signal in a video compression unit to form a decompressed playback signal.

29. (New) The method of claim 28, further comprising converting said decompressed playback signal to analog playback video data during said flight operations; and displaying said analog playback video data during said flight operations simultaneous with recording of new compressed digital video data.

30. (New) A catastrophic event-survivable video recording system, comprising:

a video data compression unit having at least a first output, said first output comprising compressed digital video data;

a solid state video data recording unit having at least a first input in signal communication with said first output from said video data compression unit, said solid state video data recording unit being capable of recording compressed digital video data in catastrophic event-survivable form; and

wherein said solid state video data recording unit comprises a conventional flight data recording unit including a processor, said conventional flight data recording unit being manufactured so that said processor runs at a first processing speed; and wherein said conventional flight data recording unit is configured with a software modification to cause said processor to run at a second processing speed, said second processing speed being faster than said first processing speed.

31. (New) The video data recording system of claim 30, further comprising a video data interface in signal communication between said video compressor first output and said solid state video data recording unit first input, said video data interface being capable of converting said compressed video data of said video data compression unit first output to a compressed video data signal that is suitable for recording by said solid state video data recording unit as a signal input to said video data recording unit first input; wherein said video data interface is configured to modify the bandwidth and frame format of said compressed video data.

32. (New) A method of recording raw video data onto a catastrophic event-survivable video recording unit, comprising:

compressing said raw video data to form compressed digital video data; and

recording said data on a solid state video data recording unit in catastrophic event-survivable form;

wherein said solid state video data recording unit comprises a conventional flight data recording unit including a processor, said conventional flight data recording unit being manufactured so that said processor runs at a first processing speed; and wherein said conventional flight data recording unit is configured with a software modification to cause said processor to run at a second processing speed.

33. (New) The method of claim 32, further comprising modifying a bandwidth and frame format of said compressed video data; and converting said compressed digital video data to a compressed video data signal that is suitable for recording by a solid state video data recording unit.

34. (New) The video recording system of claim 7, wherein said video recording system is configured to playback said compressed video playback data, convert said compressed video playback data for display, and display said compressed video playback data during flight simultaneous with recording of new compressed digital video data.

35. (New) The video recording system of claim 21, wherein said video recording system is configured playback said compressed video playback data, convert said compressed video playback data for display, and display said compressed video playback data during flight simultaneous with recording of new compressed digital video data

36. (New) The video recording system of claim 23, wherein said video recording system is configured to playback said compressed video playback data, convert said compressed video playback data for display, and display said compressed video playback data during flight simultaneous with recording of new compressed digital video data.

37. (New) The video recording system of claim 25, wherein said video recording system is configured to playback said compressed video playback data, convert said compressed video playback data for display, and display said compressed video playback data during flight simultaneous with recording of new compressed digital video data.

38. (New) A catastrophic event-survivable video recording system, comprising:

a video data compression unit having at least a first output, said first output comprising compressed digital video data;

a solid state video data recording unit having at least a first input in signal communication with said first output from said video data compression unit, said solid state video data recording unit being capable of recording compressed digital video data in catastrophic event-survivable form;

wherein said system is configured for installation on an aircraft; and

wherein said solid state video data recording unit has at least a first output, said first output comprising compressed digital video playback data, said solid state video data recording unit being capable during flight operations of playing back said compressed digital video data that is recorded in catastrophic event-survivable form.

39. (New) The catastrophic event-survivable video recording system of claim 38, wherein said solid state video data recording unit is a conventional flight data recording unit; and wherein said video recording system is configured to playback said compressed video playback data, convert said compressed video playback data for display, and display said compressed video playback data during flight simultaneous with recording of new compressed digital video data.

40. (New) A method of recording raw video data onto a catastrophic event-survivable video recording unit installed on an aircraft, comprising:

compressing said raw video data to form compressed digital video data; and

recording said data on a solid state video data recording unit in catastrophic event-survivable form; and

playing back said recorded compressed digital video data during flight operations from said solid state video data recording unit.

41. (New) The method of claim 40, wherein said solid state video data recording unit is a conventional flight data recording unit; and wherein said method further comprises playing back said compressed video playback data, converting said compressed video playback data for display, and displaying said compressed video playback data during flight simultaneous with recording of new compressed digital video data.



## **II. RESPONSE TO OFFICE ACTION**

Claims 1, 2, 4, 7, 12, 15, 17, 19, 21, 23, 24, 25, 26, and 27 have been amended to even more particularly point out and claim the subject matter of the claims. Claims 28-41 have been added. Claims 1-41 are pending in the present application.

Support for the new claims and claim amendments may be found in the claims as originally filed and throughout the Specification, for example, at page 5, lines 26-28; page 20, lines 25-29; page 21, lines 7-11; page 21, lines 13-21; page 22, line 20; and page 24, line 1.

### **A. The 35 U.S.C. § 102 Rejection Over Hill**

The Examiner rejected claims 1, 3, 5-6, 8 and 26 under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,497,419 to Hill. Applicants respectfully traverse these rejections for the following reasons.

Amended independent claims 1 and 26 each recite a solid state video data recording unit that is a *non-modified conventional flight data recording unit*. Among other things, the claimed methods and systems allow non-modified commercially available flight recording equipment to be employed, therefore advantageously reducing system cost and allowing installation to be performed (*e.g.*, on existing or new aircraft) with a minimum amount of modification or loss of vehicle interior space. (*see also* the description at page 4, line 20 to page 5, line 3). Furthermore, the claimed systems and methods may be implemented so as to interface and react in a manner similar to conventional crash data recorders, by storing data and cutting off input at predetermined accident parameters (*e.g.*, primary power loss, *etc.*), and provide commonality

with existing recorder systems so that an investigating authority requires no hardware upgrade to process and view the video data (*see* the description at page 6, lines 6-10).

In order to support an anticipation rejection under 35 U.S.C. § 102(b), each and every element of the rejected claim must be found in the cited art. In this regard, Hill does not disclose, teach or suggest anything about systems or methods for recording video data onto a *non-modified conventional flight data recording unit* as is recited by amended independent claims 1 and 26. Therefore, for this reason alone, independent claims 1, 26 and the claims dependent therefrom are novel and nonobvious over Hill (including dependent claims 3, 5-6, and 8).

For at least the above given reasons, claims 1, 3, 5-6, 8 and 26 are novel and nonobvious over Hill. Applicants therefore respectfully request that the rejection of these claims be withdrawn. Favorable reconsideration is requested.

**B. The 35 U.S.C. § 103 Rejections**

(i) The Examiner rejected claims 2, 4, 9-20, 22 and 27 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,497,419 to Hill in view of Raytheon “If a Picture is Worth a Thousand Words . . .” (hereinafter “Raytheon”). Applicants respectfully traverse these rejections for the following reasons.

Amended independent claims 1, 15 and 26 each recite a solid state video data recording unit that is a *non-modified conventional flight data recording unit*. Therefore, each of rejected claims 2, 4, 9-20, 22 and 27 also includes this limitation. As described above, Hill does not

disclose, teach or suggest (and actually teaches away from) a non-modified conventional flight data recording unit. Raytheon adds nothing in this regard.

The limitation of a *non-modified conventional flight data recording unit* is completely absent from the combination of Hill and Raytheon. In fact, Raytheon describes “a *modified* flight recorder”, and thus *teaches away* from use of a non-modified conventional flight data recording unit (*see* the first paragraph of Raytheon)(emphasis added). For this reason alone, claims 2, 4, 9-20, 22 and 27 are non-obvious over the combination of Hill and Raytheon.

For at least the above given reasons, independent claims 1, 15 and 26 and the claims dependent therefrom (including claims 2, 4, 9-14, 16-20, 22 and 27) are nonobvious over the combination of Hill and Raytheon. Applicants therefore respectfully request that the rejection of these claims be withdrawn. Favorable reconsideration is requested.

(ii) The Examiner rejected claims 7, 21, 23 and 24-25 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,497,419 to Hill in view of Raytheon and further in view of “Rakefet Advise Airborne Direct Visual Imaging for Safety Enhancement” (hereinafter “Rakefet”) and/or U.S. Patent No. 6,591,092 to Fujioka. Applicants respectfully traverse these rejections for the following reasons.

As shown above, amended independent claims 1, 15 and 26 are each novel and non-obvious over the combination of Hill and Raytheon. Each of rejected claims 7, 21, 23 and 24-25 depend from one of independent claims 1, 15 or 26, and are therefore also non-obvious over the combination of Hill and Raytheon. Neither Raytheon or Rakefet adds anything in this regard. Thus, claims 7, 21, 23 and 24-25 are patentable for this reason alone.

Furthermore, Applicants point out that each of amended dependent claims 7, 21, 23 and 24-25 recite playback *during flight operations* of compressed digital video data that is recorded by a *solid state video data recording unit*. The Examiner states that “Rakefet discloses a video data recording system [which] includes the capability of playing back recorded video data” (*see* page 7 of the Office Action). However, nothing in Rakefet discloses, teaches or suggests playback during flight operations of compressed digital video data that is recorded by a solid state video data recording unit. To the contrary, Rakefet actually *teaches away* from these limitations by describing and illustrating a system that includes a separate “standard VCR” and “[p]layback control [that is] performed by a separate VCR control panel” (*see* pages 3-4 and “Advise Block Diagram” on page 4). Therefore, assuming for sake of argument that one were to combine the cited references of Hill, Raytheon and Rakefet, such a combination would at most result in a system that employs a *separate* standard VCR and *separate* VCR control panel for playback. Thus, amended dependent claims 7, 21, 23 and 24-25 are even further patentable over the cited references for this reason.

For at least the above given reasons, amended claims 7, 21, 23 and 24-25 are even further nonobvious over the combination of Hill, Raytheon, Rakefet and/or Fujioka. Applicants therefore respectfully request that the rejection of these claims be withdrawn. Favorable reconsideration is requested.

(iii) Applicants also note that the dependent claims include additional limitations that render these dependent claims even further non-obvious over the cited references. For example, amended dependent claims 2, 17 and 27 recite a video data interface configured to modify the bandwidth and frame format of the compressed video data, or the step of modifying a bandwidth

and frame format of the compressed video data, limitations that are not disclosed, taught or suggested by any combination of the cited references.

**C. New Claims 28-41**

New claims 28-29, 38 and 40 recite playback *during flight operations* of compressed digital video data, and new claims 34, 35, 36, 37, 39 and 41 recite playback, conversion and display of compressed video playback data during flight operations *simultaneous with* recording of new compressed digital video data. New claims 31 and 33 recite a video data interface configured to modify the bandwidth and frame format of the compressed video data, or the step of modifying a bandwidth and frame format of the compressed video data. New independent claims 30 and 32 each recite a conventional flight data recording unit manufactured with a processor that runs at a first speed and that is configured with a software modification to cause its processor to run at a second processing speed faster than the first speed. These are limitations that are not disclosed, taught or suggested by any combination of the cited references. Therefore, these new claims and the claims dependent therefrom are patentable and in condition for allowance.